

**Factor structure of the component characteristics
of mental health among high-security penitentiary staff
by diagnosed levels of resilience****Iuliia Paskevskia***

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Abstract. The preservation of mental health among penitentiary staff working in high-security institutions is a critical issue due to sustained exposure to professional stressors, elevated responsibility, and psychologically demanding working conditions. The study aimed to empirically explore the level of resilience as a key resource for maintaining mental health among penitentiary personnel employed in high-security environments. The study involved 2,518 employees of high-security penitentiary institutions of the State Criminal-Executive Service of Ukraine; data were collected online via Google Forms using 16 standardised psychodiagnostic instruments, and 77 psychometric indicators were analysed in SPSS 24.0 using standardisation procedures, non-parametric tests, discriminant analysis, and factor analysis. The results of factor analysis revealed a differentiated structure of mental health characteristics depending on the level of resilience. In the low-resilience group, the dominant factors were reflective evaluation of activity (10.249%), emotional lability (7.152%), and psychological defence through regression (6.339%). In the medium-resilience group, the leading factors included persistence (9.652%), emotional exhaustion (9.085%), psychological defence through regression (6.011%), and internality in the domain of failures (4.708%). In the high-resilience group, the key factors were emotional exhaustion (9.045%), professional persistence (8.653%), and psychological defence through denial (6.454%). The findings demonstrate that resilience functions as a differentiating parameter that shapes specific configurations of mental health, psychological defence mechanisms, psychological well-being, and professional persistence under conditions of high professional risk. The conducted study provides a comprehensive assessment of the structural organisation of mental health characteristics among penitentiary staff, revealing key patterns of psychological functioning under conditions of increased professional risk. The findings may serve as a basis for developing mental health support and burnout prevention strategies for penitentiary staff in Ukraine

Keywords: high-security institutions; emotional exhaustion; burnout; psychological defence; psychological well-being; professional persistence

INTRODUCTION

The issue of preserving the mental health of penitentiary staff has become increasingly relevant in the context of growing professional, organisational, and security-related demands. The professional activity of

penitentiary personnel is carried out under conditions of heightened risk, characterised by strict regulation, constant responsibility for safety, exposure to crisis situations, emotionally intense interactions, and a high

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likelihood of professional traumatisation. Under such conditions, mental health should not be viewed solely as an individual psychological characteristic, but rather as a multidimensional construct shaped by the interaction between personal resources and the institutional environment. In contemporary scientific discourse, mental health is conceptualised as an integrative state of psychological functioning, encompassing emotional regulation, adaptive capacity, subjective well-being, and the ability to maintain professional effectiveness under stress. Within this framework, resilience is considered a key resource component that enables individuals to withstand stress, adapt to adverse conditions, recover from traumatic experiences, and sustain functional performance.

Recent studies have increasingly focused on the psychological resilience and mental well-being of professionals working under conditions of chronic stress and traumatic exposure. Researchers V.H. Dykun *et al.* (2023) examined methodological approaches to assessing the moral and psychological state of military personnel and concluded that systematic psychological diagnostics are essential for maintaining professional effectiveness and psychological stability in high-risk environments. Scientists L. Zasiakina & V. Burtzman (2023) investigated collective resilience among psychologists living and working within the shared traumatic reality of the war in Ukraine and found that professional support, social cohesion, and the integration of European psychological practices significantly contribute to sustaining resilience under prolonged crisis conditions. According to L.M. Karanushka *et al.* (2023), comprehensive psychodiagnostic instruments play an important role in assessing staff mental health and well-being, particularly in identifying emotional exhaustion, stress, and maladaptive coping strategies in occupational settings. Researchers O.M. Kokun & T.I. Melnychuk (2023) focused on practical approaches to resilience development and concluded that resilience can be strengthened through targeted psychological interventions, self-regulation techniques, and adaptive coping strategies. In addition, D. George & P. Mallery (2021) provided methodological guidance on the application of IBM SPSS Statistics in behavioural and social science research, emphasising the importance of appropriate statistical procedures for ensuring the reliability and validity of empirical findings.

In the context of the present study, resilience is understood as a psychological resource that supports adaptation, stress coping, and the maintenance of psychological well-being among penitentiary staff. Importantly, resilience is not considered a fixed trait but rather a dynamic capacity that can be developed through individual and organisational strategies. However, despite the growing body of research on resilience and mental health, the problem of identifying the structural

organisation of psychological characteristics underlying mental health in penitentiary personnel remains insufficiently explored. In particular, there is a lack of empirical models that would allow for the interpretation of mental health not only through isolated indicators, but through their latent structural relationships. This gap is especially critical in the case of penitentiary institutions with a high level of security, where the intensity of stressors and professional risks is significantly higher. Therefore, understanding how different psychological characteristics combine into integrated patterns of functioning is essential for both theoretical advancement and practical application.

The aim of this study was to identify and interpret the factor structure of mental health characteristics among penitentiary staff working in high-security institutions, taking into account their diagnosed levels of resilience. To achieve this aim, the study addresses the following objectives: to conceptualise resilience as a resource component of mental health and differentiate groups of penitentiary staff according to resilience levels; to examine the statistical validity of the applied psychodiagnostic framework and identify latent factor structures of psychological characteristics within groups with different levels of resilience; to interpret the identified factors as indicators of adaptive, compensatory, and risk-related patterns of psychological functioning. The scientific novelty of the study lies in the development of an empirically grounded factor model of mental health characteristics among penitentiary staff in high-security conditions. Unlike approaches that treat resilience as an isolated variable, this study considers it as a differentiating parameter that reveals distinct configurations of psychological resources, emotional risks, coping strategies, and behavioural patterns.

MATERIALS AND METHODS

In this study, a confirmatory quantitative research design was employed to empirically validate the theoretical assumptions and to assess the appropriateness of the selected psychodiagnostic instruments and scales for studying mental health characteristics among penitentiary staff. To empirically substantiate the theoretical provisions and to determine the validity of the application of the proposed psychodiagnostic instruments and scales, a study was conducted among employees of penitentiary institutions, taking into account the level of occupational security of their positions in accordance with the official classification of professions. The total sample of the study consisted of 8,444 employees of the penitentiary system of Ukraine, representing various categories of personnel of correctional institutions, pre-trial detention centres, and specialised institutions (including camps for prisoners of war). The study covered the North-Eastern, South-Eastern, Western, and Central-Western interregional departments of

the State Criminal-Executive Service of Ukraine. Within the scope of this article, the results of the analysis of a subsample of employees of high-security penitentiary institutions ($N = 2,518$) are presented, which corresponds to the subject of the study and allows for an in-depth analysis of mental health characteristics under conditions of increased professional risk. During the formation of the sample, the requirements for its relevance were ensured through the selection of participants corresponding to the research subject and the stated research hypotheses. The study was conducted in accordance with internationally recognised ethical standards for research involving human participants. Participation in the study was voluntary, informed consent was obtained from all respondents prior to data collection, and the confidentiality and anonymity of participants were ensured throughout all stages of the research process. The study also complied with the ethical principles of respect for human dignity, beneficence, and the protection of participants' rights and well-being (World Medical Association, 2013).

The survey results were analysed, in particular, according to the following criteria and subsamples: work with convicted individuals in correctional institutions (Prison), characterised by three levels of occupational security (minimum, medium, and high), $N = 7,938$; work in pre-detention institutions (Pre-prison), including employees of pre-trial detention centres, prisoner-of-war camps, and optimised institutions, $N = 506$. The key differentiating criterion in the study was the level of resilience, which was considered as an integral indicator of psychological stability and a fundamental resource for maintaining the mental health of personnel. According to the obtained diagnostic results, respondents were divided into groups with low, medium, and high levels of resilience.

For the empirical study, a complex of standardised psychodiagnostic methods was used: the Health Locus of Control Questionnaire (Karamushka *et al.*, 2023); the Self-Assessment of Anxiety, Frustration, Aggression, and Rigidity; the Positive Mental Health Scale (PMH-Scale) (Karamushka *et al.*, 2023); Ryff's Psychological Well-Being Scales; the Freiburg Personality Inventory (FPI); the Organisational Stress Scale; the Emotional State Assessment; the Interpersonal Relations Questionnaire (FIRO-B); the Professional Motivation Diagnostic Method; the Volitional Self-Regulation Method; the Hardiness Test; the Life Style Index; the Stress Coping Strategies Questionnaire SACS; the Subjective Control Scale; and the Connor-Davidson Resilience Scale (CD-RISC-10). The CD-RISC-10 was used as the main instrument for differentiating the sample according to resilience level. To ensure an objective classification of respondents ($N = 2518$) into low, medium, and high resilience groups, score standardisation based on the mean value ($M = 28.4$) and standard deviation ($SD = 5.8$) across the entire sample was applied. The cut-off

scores were determined as follows: respondents with scores $\leq M - 1SD$ were assigned to the low-resilience group (0-22 points; $n = 403$), participants with scores within the range of $M \pm 1SD$ were classified into the medium-resilience group (23-34 points; $n = 1712$), and respondents with scores $\geq M + 1SD$ were included in the high-resilience group (35 points and above; $n = 403$). Since the sample had been divided into three equal groups using tertiles, the group sizes has been nearly identical: low resilience – $n = 839$, medium resilience – $n = 840$, and high resilience – $n = 839$ participants.

In total, within the study, data were obtained across 84 psychometric scales using the psychodiagnostic instruments; in the statistical analysis, 77 indicators were used after excluding aggregated scales representing the sum of component scales within specific methods (e.g., the overall index of volitional regulation or the general indicator of emotional state). As a result of the empirical study, an extremely large dataset was obtained, which necessitated the use of a range of mathematical statistical methods for its analysis and generalisation: the procedure of standardisation of variables (to reduce discrepancies between quantitative results obtained from different methods with varying scales and measurement ranges; standardisation was performed using mean values and standard deviations for each scale); the Kolmogorov-Smirnov normality test (to determine the degree of correspondence of the empirical data distribution to the normal distribution in order to justify the selection of further parametric or nonparametric methods of analysis); discriminant analysis (to confirm and visualise the differentiation of the sample into subsamples depending on the identified level of resilience among respondents with different levels of occupational security); factor analysis (to reduce the number of variables and concentrate information on the main psychological characteristics and mechanisms of maintaining mental health in a compact form). To confirm the differentiation of the sample and to visualise inter-group differences, discriminant analysis was applied, in which the level of resilience served as the grouping variable, while the independent variables were the indicators of the psychodiagnostic scales. Statistical data processing was carried out using SPSS software for Windows (version 24.0) (George & Mallery, 2021).

RESULTS AND DISCUSSION

To test the statistical hypothesis regarding the presence of differences in mental health characteristics among employees of penitentiary institutions with different levels of occupational security and resilience, a multivariate statistical analysis of the obtained empirical data was conducted. To visualise the territorial distribution and the substantive relationships among the identified subsamples of penitentiary staff, discriminant analysis was applied as a type of multivariate

analysis designed for data classification and grouping. In discriminant analysis, the dependent variable is typically a single nominal scale (in this study, the "Level of Resilience" scale), which differentiates respondents into subsamples corresponding to its different categories; the independent variables are quantitative indicators derived from the diagnostic scales for all objects

of classification (with the exception of those scales for which no statistically significant differences were identified). During the analysis, the contribution of each variable to the final discriminant model was determined based on Fisher's F criterion, tolerance, and the F-to-remove statistic. The main results of the discriminant analysis calculations are presented in Table 1.

Table 1. Wilks' Lambda (λ) and χ^2 values based on the results of discriminant analysis

Test of Functions	Wilks' Lambda	Xi-square	Degree of freedom	Sig.
1 through 2	.575	4.610,702	138	.000
2	.942	491,9026	68	.000

Source: developed by the author

The first row presents the value of Wilks' lambda ($\lambda = 0.575$) and statistical significance ($p = 0.000$) for the full set of canonical functions, while the second row contains data on the discriminant ability of the set after excluding the first function. As can be observed, the full set of functions demonstrates a very high discriminant capacity, which slightly decreases after the exclusion of the first function but remains within the threshold of statistical significance ($p \leq 0.05$). The obtained results allow for the interpretative analysis of discriminant data. Thus, statistically significant indicators and the χ^2 test at the level of $p \leq 0.05$ visualise and confirm the feasibility of studying the patterns and determinants of mental health among penitentiary staff based on their level of resilience and considering the type of penitentiary institution. The next step in constructing the overall model of mental health was the process of reducing the number of variables and concentrating the information into a smaller set of characteristics. For this purpose, factor analysis was applied, as it allows for reducing the dimensionality of the initial space of intercorrelated variables and ensures a more economical representation of the data with minimal loss of information. The result of factor analysis is the transition from a large number of initial variables to a smaller number of new variables forming so-called factors, which are interpreted as the underlying sources of shared variance among the original variables. Through this approach, a set of factor-based symptom complexes of mental health among penitentiary staff was obtained.

The factorisation of the matrix of psychological scales (variables) in terms of the psychological components of mental health criterion was carried out using the Principal Components method followed by Varimax rotation. The number of factors was determined using Cattell's scree test, which involves plotting the eigenvalues (scree plot) of all diagnostic indicators included in the analysis. When analysing the factor matrix, the signs and magnitudes of factor loadings for each component were taken into account. The factor matrix also indicates which variables form each factor. The factor extracted as a result of Varimax rotation represents a

set of variables with significant loadings. Accordingly, a factor can be considered an artificial analytical unit for grouping variables based on the relationships existing among them. The appropriateness of applying factor analysis to the sample was also tested using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy: correlations between the factor and the variables included in its structure below 0.5 were excluded from the analysis, as well as Bartlett's test of sphericity ($p \leq 0.001$). The factorisation procedure was applied stepwise to all three subsamples of penitentiary staff, taking into account the diagnosed level of resilience. This article presents the results obtained for the subsample of employees of high-security penitentiary institutions with three levels of resilience (low, medium, high).

During the construction of the factor models, the initial set of 77 psychometric indicators underwent a statistical dimensionality reduction procedure. At the preparatory stage of the analysis, based on the results of the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the intercorrelation matrix, 8 variables demonstrating unsatisfactory indicators or multicollinearity were excluded from further analysis. Consequently, the factorisation procedure for each group included 69 variables, which was confirmed by the identical number of degrees of freedom in Bartlett's test of sphericity ($df = 2346$, $p = 0.000$). To ensure the mathematical reliability of the models, only variables demonstrating factor loadings ≥ 0.50 after Varimax rotation were included in the final factor-loading tables. Variables with loadings below this threshold did not form stable symptom complexes and were therefore excluded from the final structure. Thus, the appropriateness of applying factor analysis to the selected set of diagnostic scales in the subsample of high-security penitentiary staff with a diagnosed low level of resilience was confirmed using the Kaiser-Meyer-Olkin measure ($KMO = 0.875$) and Bartlett's test of sphericity (approximate value $\chi^2 = 20,865.611$; $df = 2346$; $p = 0.000$), which indicates the suitability of the data for this type of analysis. The factor model of the components of mental health characteristics for the selected subsample is presented in Figure 1.

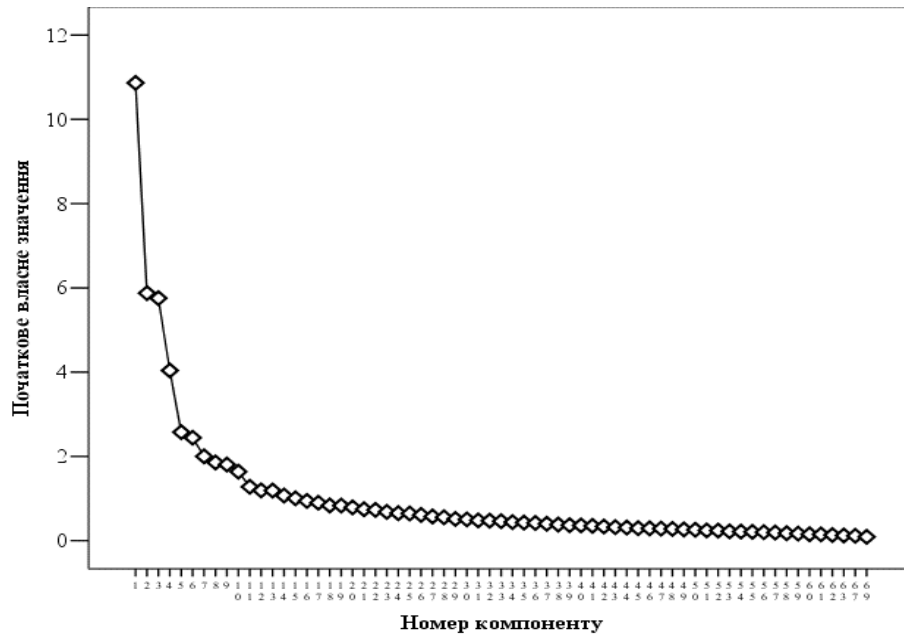


Figure 1. Results of the application of Cattell's scree test to the diagnostic data of penitentiary staff working in high-security institutions with a diagnosed low level of resilience

Source: developed by the author

Table 2 presents the results of the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity, which were used to assess the suitability of the obtained data for factor analysis among penitentiary staff with a low level of resilience. During the analysis of the obtained data, it is necessary to specify the cumulative percentage of variance explained by the extracted factors, as this indicator reflects the extent to which the empirical dataset is

adequately represented by the factor solution: the higher this value, the greater the proportion of the data that has been successfully factorised. Following Varimax rotation, the factor loading matrix appeared to be well-structured, with ten clearly defined factors explaining nearly 60% of the variance in the empirical dataset. The identification of the most significant factors is confirmed by correspondingly high factor loading coefficients (Table 3).

Table 2. Measure of sampling adequacy and Bartlett's Test for factor analysis of penitentiary staff in high-security institutions with a low level of resilience

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.875
Bartlett's Test of Sphericity	Approx. Chi-square	20865,611
	df (degrees of freedom)	2346
	Sig.	.000

Source: developed by the author

Table 3. Eigenvalues of extracted factors

Factors	Factor Loadings after Rotation		
	Total (factor weight)	% of Variance	(Cumulative variance %)
1	6,662	10,249	10,249
2	4,649	7,152	17,401
3	4,120	6,339	23,740
4	4,065	6,254	29,994
5	3,593	5,527	35,521
6	3,542	5,450	40,971
7	3,499	5,382	46,353
8	3,442	5,295	51,648
9	3,181	4,895	56,543
10	2,108	3,243	59,785

Source: developed by the author

In the current case, the first factor explains 10.2% of the variance, the second 7%, the third 6.3%, the fourth 6.2%, the fifth 5.5%, the sixth 5.4%, the seventh 5.3%, the eighth 5.2%, the ninth 4.8%, and the tenth 3.2% of the total variance of the empirical dataset. The obtained factor model further requires a detailed description of the component structure of each extracted factor and the assignment of generalised factor labels. It should be noted that factor names are assigned based on the analysis of the variables that constitute them or on the basis of the leading component (which typically has the highest loading and explains a substantial proportion of the variance within the factor). The substantive analysis of each identified factor and their generalised labelling are presented below. The magnitude of factor loadings is indicated in parentheses next to each factor component, reflecting the strength of the relationship between the given variable and the respective factor. The first factor includes the following variables: evaluation of performance outcomes (.730), endorsement of others' values (–.671), life goals (.666), involvement (.657), professional interests and values (.598), professional aspirations (.593), activity and productivity (–.573), breadth of interests (–.565), self-control (.551), persistence (.540), and internality in the domain of professional achievements (.525). The substantive analysis of the diagnostic scales with the highest variance determines the factor label as “Reflective Evaluation of Activity Outcomes”. The second factor includes the following components: emotional lability (.840), depression (–.822), shyness (.792), neuroticism (.723), and irritability (.680). It is labelled based on the variable with the highest positive loading as “Emotional Lability”.

The third factor includes the following variables: regression (.881), denial (.873), rationalisation (.865), projection (.863), compensation (.842), and displacement (.834). We propose to generalise the content of this factor under the label “Psychological defence through regression”. The fourth factor is defined by the

following components: indirect actions (.884), asocial actions (.817), impulsive actions (.791), aggressive actions (.780), seeking social contact (.745), cautious actions (.720), and seeking social support (.684). Based on the included variables, It is proposed to label this factor as “Constructive Coping Behaviour”. The fifth factor is characterised by the following scales: general internality (.769), internality in the domain of failures (.696), internality regarding health and illness (.642), internality in occupational relations (.579), internality in family relations (.565), and internality in the domain of achievements (.548). The content of this factor allows it to be interpreted as “Subjective Control”. The sixth factor symptom complex includes: Ce (real control) (.754), Le (real inclusion) (.730), Lw (expected inclusion) (.721), Aw (expected affect) (.718), Ae (real affect) (.678), and Cw (expected control) (.677). It is labelled according to the content of the leading component as “Responsibility”.

The seventh factor summarises the following characteristics: energy – fatigue (.851), self-confidence – helplessness (.819), elevation – depression (.815), calmness – anxiety (.777). The positive correlations for these scales indicate the predominance of energy, self-confidence, and calmness, which allows this factor to be labelled as “Energy”. The eighth factor includes the following variables: emotional stability (.748), masculinity-femininity (.736), extraversion-introversion (.659), spontaneous aggression (.568), and openness (.560). It is labelled according to the variable with the highest positive loading as “Emotional Stability”. The ninth factor includes the scales of anxiety (.695), aggression (.689), rigidity (.661), and frustration (.581), which determine its label as “Defensive Emotional Reactions”. The tenth factor includes the variables: internal locus of control (.774), control by powerful others (.635), and chance control (–.598). It is labelled based on the first component as “Internal Health Locus of Control”. The generalised nominative factor structure of this subsample is presented in Figure 2.

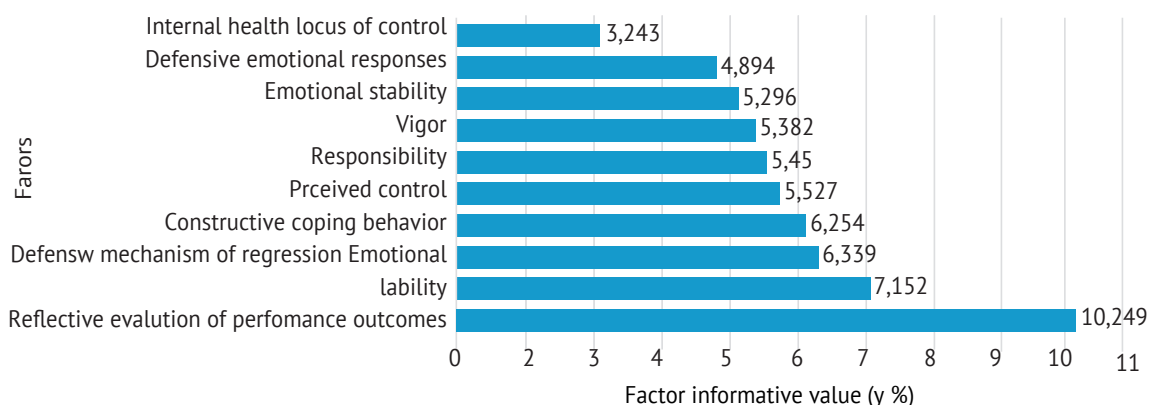


Figure 2. Nominal and informative factor structure of the component characteristics of mental health among penitentiary staff working in high-security institutions with a diagnosed low level of resilience

Source: developed by the author

The next stage of the analysis aims to specify the factor structure of mental health characteristics in the subsample of penitentiary staff working in high-security institutions with a medium level of resilience. The values of the Kaiser-Meyer-Olkin measure ($KMO=0.924$), as well as Bartlett's test of sphericity (approximate value

$\chi^2 = 39,695.093$; $df = 2346$; $p = 0.000$), indicate the suitability of the data for further analysis. Factor rotation resulted in a structure explaining more than 55% of the variance of the empirical dataset. The identification of the most significant factors is confirmed by correspondingly high factor loading coefficients (Table 4).

Table 4. Eigenvalues of extracted factors

Factors	Factor Loadings after Rotation		
	Total (factor weight)	% of Variance	Cumulative variance %
1	6,660	9,652	9,652
2	6,269	9,085	18,738
3	4,148	6,011	24,749
4	3,249	4,708	29,457
5	3,209	4,650	34,108
6	3,008	4,359	38,467
7	2,947	4,272	42,739
8	2,748	3,983	46,722
9	2,665	3,862	50,584
10	1,779	2,579	53,163
11	1,492	2,162	55,325

Source: developed by the author

In this case, the first factor explains 9.6% of the variance, the second 9%, the third 6%, the fourth 4.7%, the fifth 4.6%, the sixth 4.3%, the seventh 4.2%, the eighth nearly 4%, the ninth 3.8%, the tenth 2.5%, and the eleventh 2.1% of the total variance of the empirical dataset. It is necessary to then proceed to a detailed substantive analysis of each of the identified factors. The first factor includes the following variables: persistence (.767), control (.657), professional aspirations (.628), involvement (.620), professional interests and values (.610), evaluation of performance outcomes (.595), self-control (.577), life goals (.572), social desirability (–.538), and risk acceptance (.501). It is labeled according to the component with the highest factor loading as “Persistence”. The second factor includes the following indicators: aggressiveness (.771), anxiety (.754), rigidity (.715), emotional lability (.707), depression (.688), neuroticism (.617), shyness (.612), and irritability (.542). The content of this factor allows it to be generalised under the label “Emotional exhaustion”. The third factor is defined by psychological defence mechanisms: regression (.785), rationalisation (.760), denial (.752), projection (.743), compensation (.740), and displacement (.675). Therefore, it is logically labeled as “Psychological Defence through Regression”. The fourth factor includes the following variables: internality in the domain of failures (.710), internality in occupational relations (.652), internality in family relations (.648), internality regarding health and illness (.617), and internality in the domain of achievements (.605). This factor integrates indicators of respondents’ internality; however, the variable with the highest loading determines its label as “Internality in the Domain of Failures”.

The fifth factor includes the following variables: elevation – depression (.789), energy – fatigue (.776), self-confidence – helplessness (.752), and calmness – anxiety (.729). The analysis of responses across these dichotomous scales allows the factor to be generalised under the label “Situational Emotional Suppression”. The sixth factor is defined by the following variables: extraversion-introversion (.798), masculinity-femininity (.693), and emotional stability (.594). The distribution of responses on the extraversion-introversion scale indicates an average score, which determines the factor label as “Ambiversion”. The seventh factor includes the following scales: asocial actions (.748), indirect actions (.692), aggressive actions (.610), and impulsive actions (.506). The factor is labeled according to the variable with the highest loading as “Asocial Actions”. The eighth factor includes the following variables: seeking social support (.743), establishing social contact (.685), and cautious actions (.619). The factor is labeled according to the variable with the highest loading as “Seeking Social Support”. The ninth factor integrates the following variables: Le (real inclusion) (.710), Ce (real control) (.640), Lw (expected inclusion) (.620), Cw (expected control) (.589), Ae (real affect) (.550), and Aw (expected affect) (.535). This composition determines its label as “Professional Proactivity”. The tenth factor reflects an “External Health Locus of Control”, as it includes variables such as control by powerful others (.752) and internal locus of control (–.705). The eleventh factor reflects the characteristics of interaction with the surrounding social environment: positive relations with others (.836) and autonomy (.835). It is labeled according to the first variable as “Positive

Relations with Others". The generalised nominative factor structure of this subsample is presented in Figure 3. The next stage of the analysis aims to specify the factor structure of mental health characteristics in the subsample of penitentiary staff working in high-security institutions with a high level of resilience. The values of the Kaiser-Meyer-Olkin measure ($KMO = 0.909$),

as well as Bartlett's test of sphericity (approximate value $\chi^2 = 26,693.263$; $df = 2346$; $p = 0.000$), indicate the suitability of the data for further analysis. Factor rotation resulted in a structure explaining nearly 60% of the variance of the empirical dataset. The identification of the most significant factors is confirmed by correspondingly high factor loading coefficients (Table 5).

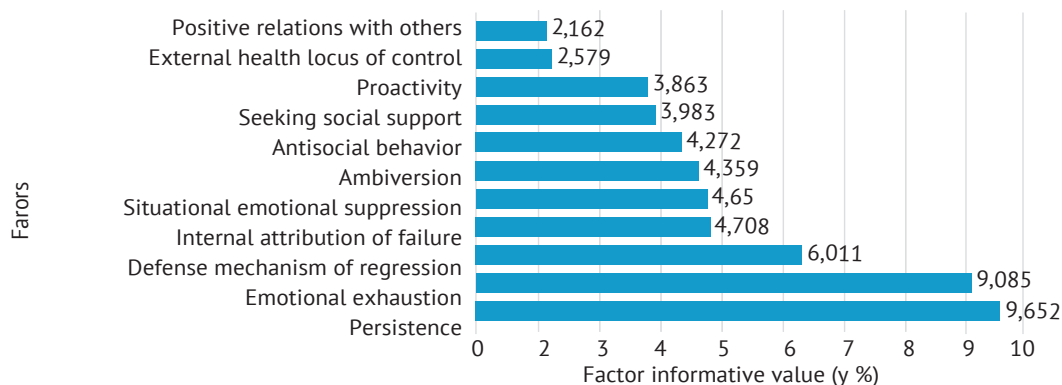


Figure 3. Nominal and informative factor structure of the component characteristics of mental health among penitentiary staff working in high-security institutions with a diagnosed medium level of resilience

Source: developed by the author

Table 5. Eigenvalues of extracted factors

Factors	Factor Loadings after Rotation		
	Total (factor weight)	% of Variance	Cumulative variance%
1	6,241	9,045	9,045
2	5,970	8,653	17,697
3	4,453	6,454	24,151
4	3,628	5,257	29,409
5	3,486	5,052	34,460
6	3,201	4,640	39,100
7	3,143	4,555	43,655
8	3,096	4,487	48,142
9	2,825	4,095	52,237
10	1,988	2,881	55,118
11	1,519	2,202	57,320

Source: developed by the author

In this case, the first factor explains more than 9% of the variance, the second 8.6%, the third 6.4%, the fourth 5.2%, the fifth 5%, the sixth 4.6%, the seventh 4.5%, the eighth 4.4%, the ninth 4%, the tenth nearly 3%, and the eleventh 2.2% of the total variance of the empirical dataset. The first factor includes the following variables: aggressiveness (.768), anxiety (.766), emotional lability (.763), depression (.726), rigidity (.656), neuroticism (.641), shyness (.627), and irritability (.547). It is labelled, as in the previous subsample, "Emotional exhaustion". The second factor includes the following variables: professional aspirations (.741), persistence (.673), life goals (.654), evaluation of performance outcomes (.642), self-control (.633),

professional interests and values (.630), control (.609), internality in the domain of professional achievements (.603), and involvement (.590). Based on the included variables, it is proposed to generalise this factor as "Professional persistence".

The third factor includes: denial (.802), regression (.800), projection (.765), rationalisation (.751), compensation (.739), and displacement (.724). We generalise it under the label "Psychological defence through denial". The fourth factor includes: social desirability (.808), internality in the domain of failures (.670), internality in occupational relations (.655), internality in family relations (.634), internality in the domain of achievements (.620), internality regarding health and illness

(.604), and internality in interpersonal relations (.547). It is labelled according to the first variable as “Social Desirability”. The fifth factor includes: asocial actions (.748), indirect actions (.657), aggressive actions (.612), and endorsement of others’ values (.505). The factor is labelled according to the variable with the highest loading as “Asocial Actions”. The sixth factor includes: extraversion-introversion (.807), masculinity-femininity (.673), emotional stability (.643), spontaneous aggression (.551), openness (.530), and frustration (.504). Based on the included variables, it is proposed to generalise this factor as “Aspiration for Leadership”. The seventh factor includes: energy – fatigue (.832), self-confidence – helplessness (.805), calmness – anxiety (.764), and elevation – depression (.751). The analysis of these variables indicates that the factor can be labelled as “Positive Emotional Self-Evaluation”. The eighth factor reflects the following set of characteristics:

Le (real inclusion) (.756), Ce (real control) (.708), Lw (expected inclusion) (.653), Ae (real affect) (.612), Cw (expected control) (.604), and Aw (expected affect) (.562). This composition determines its label as “Active Life Position”. The ninth factor includes the following scales: establishing social contact (.802), seeking social support (.776), cautious actions (.684), and assertive actions (.562). It is labelled according to the first variable as “Establishing Social Contact”. The tenth factor includes: control by powerful others (.737), internal locus of control (–.546), and chance control (.527). This combination of scales indicates the label “Need for External Health Control”. The eleventh factor includes indicators of well-being: positive relations with others (.794) and autonomy (.763). It can be labeled as “Psychological Well-Being”. The generalised nominative factor structure of this subsample is presented in Figure 4.

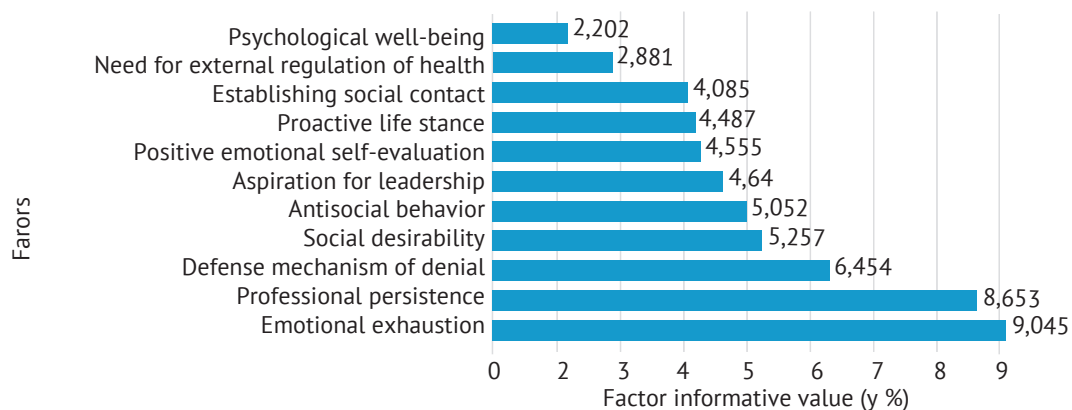


Figure 4. Nominal and informative factor structure of the component characteristics of mental health among penitentiary staff working in high-security institutions with a diagnosed high level of resilience

Source: developed by the author

Thus, the application of factor analysis to the subsample of penitentiary staff working in high-security institutions with a diagnosed level of resilience made it possible to generalise a set of factor-based symptom complexes describing the characteristics of their mental

health. A comprehensive list of all factor sets, taking into account the specific features of respondents’ professional activity, is presented in Table 6. The percentage of the total variance of the dataset accounted for by each factor is indicated alongside each factor.

Table 6. Factor symptom complexes in the subsample of penitentiary staff working in high-security institutions with a diagnosed level of resilience

Characteristics of work conditions	Nº	Resilience level (RL)		
		Low RL	Medium RL	High RL
High-security staff	1	Reflective evaluation of activity (10,249) *	Persistence (9,652)	Emotional exhaustion (9,045)
	2	Emotional lability (7,152)	Emotional exhaustion (9,085)	Professional persistence (8,653)
	3	Psychological defence through regression (6,339)	Psychological defence through regression (6,011)	Psychological defence through denial (6,454)
	4	Constructive coping behaviour (6,254)	Internality in the domain of failures (4,708)	Social desirability (5,257)

Table 6, Continued

Characteristics of work conditions	№	Resilience level (RL)		
		Low RL	Medium RL	High RL
High-security staff	5	Subjective control (5,527)	Situational emotional suppression (4,650)	Asocial actions (5,052)
	6	Responsibility (5,450)	Ambiversion (4,359)	Aspiration for leadership (4,640)
	7	Energy (5,382)	Asocial actions (4,272)	Positive emotional self-evaluation (4,555)
	8	Emotional stability (5,295)	Seeking social support (3,983)	Active life position (4,487)
	9	Defensive emotional reactions (4,895)	Proactivity (3,862)	Establishing social contact (4,095)
	10	Internal health locus of control (3,243)	External health locus of control (2,579)	Need for external health control (2,881)
	11		Positive relations with others (2,162)	Psychological well-being (2,202)

Note: Reflective evaluation of activity – percentage of the total variance of the dataset (%)

Source: developed by the author

Thus, the results of the conducted factor analysis made it possible to identify the structural organisation of the psychological characteristics of mental health among penitentiary staff working in high-security institutions depending on their level of resilience. It has been established that the mental health of personnel has a multidimensional nature and is represented through a system of interrelated factors reflecting both resource-based and destructive components of psychological functioning. The identified factor-based symptom complexes demonstrate different configurations of psychological characteristics, which makes it possible to differentiate adaptive, compensatory, and risk-related patterns of personnel functioning under conditions of increased professional workload. The obtained results provide an empirical basis for further interpretation of the patterns of mental health preservation and the role of resilience as a key regulatory resource.

The findings of the present study are consistent with contemporary theoretical and empirical approaches to resilience as a key psychological resource for maintaining mental health under conditions of prolonged occupational stress. L.S. Adamenko (2020) analysed modern approaches to understanding mental resilience and concluded that resilience should be interpreted as a multidimensional construct integrating emotional stability, adaptive coping, and the ability to preserve psychological functioning under adverse conditions. These conclusions correspond with the results of the current study, in which resilience differentiated specific configurations of emotional exhaustion, psychological defence mechanisms, and professional persistence among penitentiary personnel. D. Assonov & O. Khaustova (2019) examined the evolution of the concept of resilience in contemporary scientific literature and emphasised its dynamic and context-dependent nature. Their work demonstrated

that resilience is not a static personality trait but rather a flexible system of adaptive mechanisms shaped by environmental demands. This position is supported by the present findings, which revealed different factor structures of mental health characteristics depending on the level of resilience among employees working in high-security penitentiary institutions. A.P. Horbachyk & S.A. Salnikova (2008) focused on methodological approaches to sociological data analysis using SPSS and highlighted the importance of multivariate statistical procedures for identifying latent psychological structures. The current study expanded these methodological principles through the application of discriminant and factor analysis to a large-scale sample of penitentiary personnel, allowing the identification of adaptive and risk-related psychological patterns associated with resilience levels. Researchers V.H. Dykun *et al.* (2023) investigated methodological approaches to assessing the moral and psychological state of military personnel and concluded that systematic psychodiagnostic assessment is essential for maintaining effectiveness in high-risk professional environments. Similar conclusions were obtained in the present study, where comprehensive psychodiagnostic assessment enabled the identification of significant differences in psychological functioning among groups with low, medium, and high resilience. Scientists L. Zasiakina & V. Burtzman (2023) explored collective resilience among psychologists living in the traumatic context of war in Ukraine and demonstrated the importance of social support, professional solidarity, and adaptive coping for sustaining mental stability. In comparison, the present research extends these findings to penitentiary personnel and confirms that resilience also plays a central role in preserving psychological well-being in highly stressful institutional environments. O.M. Kokun *et al.* (2012) developed diagnostic

techniques for assessing leadership qualities among military personnel and emphasised the significance of psychological readiness, self-regulation, and persistence in professional performance. The results of the current study support these conclusions, as persistence emerged as one of the dominant factors within groups demonstrating medium and high resilience. G.P. Lasos (2018) conceptualised resilience as a complex psychological phenomenon integrating adaptive, compensatory, and developmental mechanisms. The author concluded that resilience facilitates psychological recovery and supports effective functioning under stressful conditions. These theoretical assumptions align with the findings of the current study, which demonstrated that resilience structures the balance between adaptive resources and maladaptive defence mechanisms in penitentiary staff. O.H. Uhryn (2017) analysed psychological aspects of management and stressed the importance of emotional regulation, responsibility, and adaptive leadership in organisational settings. The present study confirms these ideas by demonstrating that emotional exhaustion and internality significantly influence the psychological functioning of penitentiary personnel under conditions of increased professional risk.

G.A. Bonanno *et al.* (2011) examined resilience following trauma and loss and concluded that many individuals maintain stable psychological functioning despite exposure to highly stressful experiences. The findings of the present study similarly indicate that employees with high resilience preserve professional persistence despite the presence of emotional exhaustion and occupational stressors. S. Joseph & P. Linley (2008) investigated post-traumatic growth from the perspective of positive psychology and argued that traumatic experiences may stimulate personal development and psychological strengthening. Although the current study focused primarily on mental health preservation rather than post-traumatic growth, the identified adaptive patterns among highly resilient staff partially support the idea that stressful professional conditions may facilitate the development of compensatory psychological resources. S.J. Lepore & T.A. Revenson (2006) analysed the relationship between resilience and post-traumatic growth and concluded that adaptive coping strategies and cognitive processing are essential for positive adjustment following adversity. Similar mechanisms may explain the dominance of reflective evaluation and persistence identified in the present study among different resilience groups. S.S. Luthar *et al.* (2000) defined resilience as a dynamic process of positive adaptation despite significant adversity and highlighted the interaction between risk and protective factors. The present study empirically supports this conceptualisation by demonstrating that resilience differentiates adaptive and maladaptive psychological structures among penitentiary staff exposed to chronic occupational stress. F. Luthans *et al.* (2006) introduced

the concept of psychological capital, emphasising resilience, optimism, efficacy, and hope as resources promoting professional effectiveness. The current findings complement this framework by showing that resilience is closely associated with professional persistence and psychological stability among employees of high-security penitentiary institutions.

R. Neman (2005) described the APA resilience initiative and emphasised the importance of resilience-building programmes for maintaining psychological health under stressful conditions. The practical implications of the present study correspond with this approach, as the obtained results may serve as a basis for developing mental health support and burnout prevention strategies for penitentiary personnel in Ukraine. M. Rutter (1990) analysed psychosocial resilience and protective mechanisms, concluding that resilience depends on the interaction between individual psychological resources and environmental influences. The current study supports this perspective by demonstrating that psychological defence mechanisms, emotional stability, and persistence form interconnected systems influencing mental health outcomes in penitentiary staff. G.E. Richardson (2002) proposed the metatheory of resilience, according to which individuals reconstruct psychological balance following disruption through adaptive reintegration processes. The present findings partially confirm this model, particularly in relation to highly resilient employees who demonstrated adaptive combinations of persistence and psychological defence mechanisms despite emotional exhaustion.

Overall, the findings of the present study substantially expand existing theoretical and empirical understandings of resilience as a central psychological resource for maintaining mental health under conditions of increased professional risk. In contrast to previous studies that primarily examined resilience either conceptually or within military and clinical contexts, the current research provides a comprehensive structural analysis of psychological functioning among penitentiary personnel employed in high-security institutions. The identified factor structures demonstrate that resilience not only contributes to emotional stability and professional persistence but also determines the configuration of psychological defence mechanisms and adaptive resources under chronic occupational stress. Consequently, the obtained results confirm the practical importance of resilience-oriented psychological support programmes and highlight the necessity of systematic mental health monitoring and burnout prevention strategies for penitentiary staff in Ukraine.

CONCLUSIONS

As a result of the study, the factor structure of the mental health characteristics of penitentiary staff working in high-security institutions was empirically determined, taking into account the diagnosed level of

resilience. In the group of staff with a low level of resilience, the leading factors are: "Reflective Evaluation of Activity Outcomes" (10.249%), "Emotional Lability" (7.152%), and "Psychological defence through regression" (6.339%). This structure indicates that under conditions of low resilience, the mental health of personnel is characterised by a combination of increased focus on evaluating one's own performance outcomes, emotional instability, and the activation of regressive psychological defence mechanisms.

In the group of staff with a medium level of resilience, the leading factors are: "Persistence" (9.652%), "Emotional exhaustion" (9.085%), "Psychological defence through regression" (6.011%), and "Internality in the Domain of Failures" (4.708%). The obtained results indicate an ambivalent structure of mental health in this group: on the one hand, there is pronounced professional persistence and the ability to maintain activity, while on the other hand, signs of emotional exhaustion and regressive responses remain. The factor "Internality in the Domain of Failures" reflects a tendency among personnel to associate professional difficulties and failures with personal responsibility, which may have both adaptive and risk-related psychological implications depending on the level of environmental support and available resources. In the high-resilience group, the leading factors were emotional exhaustion (9.045%), professional persistence (8.653%), and psychological defence through denial (6.454%), indicating that professional stress remains significant even among the most resilient staff. At the same time, high resilience was associated with the ability to maintain

professional effectiveness through persistence and compensatory psychological distancing from emotional strain. Thus, the level of resilience serves as an important differentiating criterion that makes it possible to identify different structural configurations of mental health among penitentiary staff working in high-security institutions, and it should not be interpreted as a simple indicator of the absence of psychological risks, but rather as a determinant of how these risks are experienced, compensated, and professionally processed. Prospects for further research are associated with deepening the analysis of the dynamic changes in the factor structure of mental health, particularly in the context of implementing targeted intervention programs, as well as with the development of predictive models of psychological risks based on the identified factor-based symptom complexes.

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CONFLICT OF INTEREST

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Факторна структура складових характеристик психічного здоров'я працівників пенітенціарних установ з високим рівнем безпеки та діагностованим рівнем резильєнтності

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Анотація. Збереження психічного здоров'я серед працівників пенітенціарних установ, що працюють у закладах суворого режиму, є надзвичайно важливим питанням через постійний вплив професійних стресогенних факторів, підвищену відповідальність та психологічно напружені умови праці. Мета дослідження полягала в емпіричному вивченні рівня резистентності як ключового ресурсу для підтримання психічного здоров'я серед пенітенціарного персоналу, зайнятого в умовах суворого режиму. У дослідженні взяли участь 2 518 працівників виправних установ з високим рівнем безпеки Державної служби виконання покарань України; дані збиралися онлайн за допомогою Google Forms із використанням 16 стандартизованих психодіагностичних інструментів, а 77 психометричних показників було проаналізовано в SPSS 24.0 із застосуванням процедур стандартизації, непараметричних тестів, дискримінантного аналізу та факторного аналізу. Результати факторного аналізу виявили диференційовану структуру характеристик психічного здоров'я залежно від рівня резистентності. У групі з низькою резистентністю домінуючими факторами були рефлексивна оцінка діяльності (10,249 %), емоційна лабільність (7,152 %) та психологічний захист через регресію (6,339 %). У групі середньої резистентності провідними факторами були наполегливість (9,652%), емоційне виснаження (9,085%), психологічний захист через регресію (6,011%) та інтерналізація у сфері невдач (4,708%). У групі з високим рівнем резистентності ключовими факторами були емоційне виснаження (9,045 %), професійна стійкість (8,653 %) та психологічний захист шляхом заперечення (6,454 %). Отримані результати свідчать про те, що резистентність виступає як диференціюючий параметр, який визначає специфічні конфігурації психічного здоров'я, механізмів психологічного захисту, психологічного благополуччя та професійної стійкості в умовах високого професійного ризику. Проведене дослідження надає комплексну оцінку структурної організації характеристик психічного здоров'я серед працівників пенітенціарної системи, виявляючи ключові закономірності психологічного функціонування в умовах підвищеного професійного ризику. Отримані результати можуть слугувати основою для розробки стратегій підтримки психічного здоров'я та профілактики вигорання для працівників пенітенціарної системи в Україні.

Ключові слова: установи з посиленням режимом безпеки; емоційне виснаження; вигорання; психологічний захист; психологічне благополуччя; професійна стійкість